

**Claims.**

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1. A method of applying a metal coating on the surface of materials (powders and substrates) which comprises degreasing, cleaning and drying of the surface and mechanical smearing of the particles of a compound chosen from the group of metals, alloys, metal oxides, metal hydroxides, metal sulfides (metals are copper, nickel, aluminum, zinc, titanium, tungsten, germanium, gold, cobalt, molybdenum, tin, palladium, platinum) on the surface of the material with a subsequent reducing of the compound on heating in non-oxidizing atmosphere.
- 10 2. A method as claimed in claim 1, wherein said mechanical smearing of said particles on powders is carried out with the help of mixing in mills and mixers.
3. A method as claimed in claim 1, wherein said mechanical smearing of said particles on flat surfaces is carried out by rolling or by pouring a high solid phase content suspension with a subsequent drying and rolling.
- 15 4. A method as claimed in claim 1, wherein said mechanical smearing of said particles on the surface of a substrate having a complex shape is carried out with the help of pulverization of a suspension or of a powder.
5. A method as claimed in claim 1, wherein copper monoxide and dioxide and nickel monoxide are used as said compounds which form the metal coating, and heating is performed in non-oxidizing atmosphere to temperatures 200-500 °C.
- 20 6. A method as claimed in claim 1, wherein said mechanical smearing of said metals and alloys is performed in non-oxidizing atmosphere to temperatures 200-300 °C.
7. A method as claimed in claim 1, wherein one or several secondary layers of metal are applied to the surface of the primary metal layer and/or metal layer is protected from oxidation by treatment in organic solvents ( $CF_2Cl_2$ ,  $CHClF_2$  or  $CF_4$ ).
- 25 8. A method as claimed in claim 1, wherein metal layer obtained is heated in an oxidizing atmosphere until the required degree of oxidation is obtained.
9. A method as claimed in claim 1, wherein the material to be coated is an abrasive powder (synthetic or natural diamond, cubic boron nitride, corundum, ruby, sapphire, silicon carbide).
- 30 10. A method as claimed in claim 1, wherein metallized abrasive particles are sintered with metal by the technique of hot pressing in an inert atmosphere in order to obtain a compact for manufacturing of an abrasive instrument.

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11. A method as claimed in claim 1, wherein said material with a metal coating is an element of an electronic device.

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